

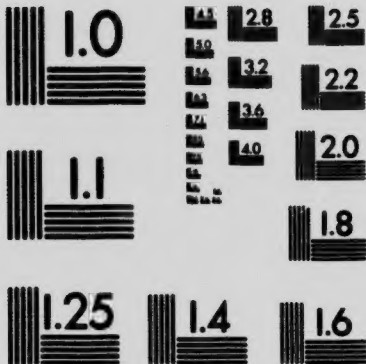
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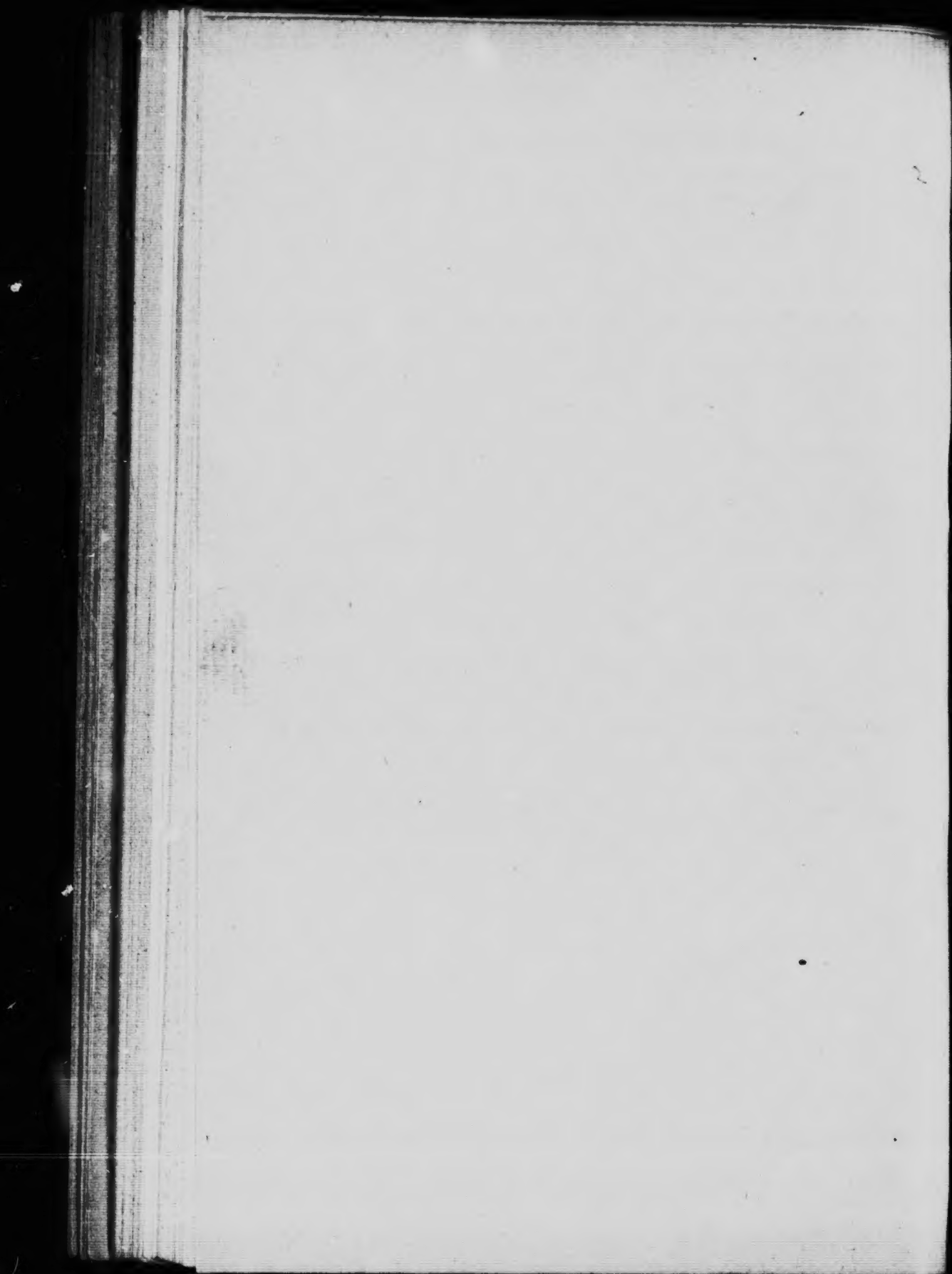


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62

Interim Reports of the Toronto School Survey

III.
PURCHASING

IV.
STORES

V.
ACCOUNTING



ISSUED BY
THE BUREAU OF MUNICIPAL RESEARCH
189 CHURCH STREET, TORONTO
FEBRUARY, 1921

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LETTER OF TRANSMITTAL

To the Board of Education and Citizens of Toronto.

The reports which follow are based on conditions existing as of June, 1920. No doubt since then, in the reorganization being worked out by the Business Administrator, many changes have been made. The statements in the reports must not, therefore, be taken as criticisms of his administration, but rather as indications of some of the difficulties which he has to face and to overcome which he will need the individual support of the citizens.

It should, of course, be borne in mind that problems of purchasing were much complicated by war and post-war conditions between 1914 and 1920.

It is quite evident that as the present conditions are the result of years of growth and habit, the task of bringing about business-like and economical administration of all departments of the Board's work cannot be completed in a day. The hardest work and the closest co-operation will be necessary to accomplish it at all. With the best of intentions, waste is bound to occur where the most effective measures are not taken to combat it. Waste is a natural concomitant of all human operations. **It can be eliminated only by strenuous measures.** It may always be taken for granted that waste exists, if such strenuous measures have not been taken. It would be a miracle if it did not exist. Every dollar wasted, or spent unwisely, is a dollar subtracted from worthwhile expenditures, since even the pockets of the taxpayers are not bottomless. The economical and effective administration of public affairs is, therefore, a moral as well as a financial question.

BUREAU OF MUNICIPAL RESEARCH.

The Purchasing and Supply Department of the Toronto Board of Education.

INTRODUCTION

School supplies were formerly purchased through the Chief Inspector's Department. Later, the work was transferred to the Secretary-Treasurer's Department, with a former employee of the Chief Inspector's Department in charge, as clerk of supplies. The present Department was organized as an independent unit about 1912, retaining the said clerk of supplies as the chief executive, with the official title of "Clerk of Supplies." The title of the office was changed, about 1915, to "Superintendent of Supply Department" and, again, in February, 1920, to "Superintendent of Purchasing and Supply Department."

The importance of this phase of the work of the Board of Education is indicated by its large annual expenditure which, last year, amounted to \$378,000. The annual cost of administering the department is about \$32,000.

The purchase of supplies is a problem of prime importance to the administrative boards of public institutions. It is essential to the effective operation of such an organization as the Board of Education that accepted standard quantities and qualities of fuel, building materials, text books, stationery and other supplies be on hand whenever wanted. It is most desirable that the process of securing them be carried on with the greatest possible economy of effort and money.

Wastage of public funds is as apt to develop in the purchasing and stores departments as in the constructing or administrative departments.

Waste may be caused by

- The lack of any purchasing system,**
- An inefficient system, or**
- Inefficient operation of a good system.**

Poor purchasing may appear in

- An accumulation of unused or spoiled stock,**
- A constant shortage of needed stores,**
- The thoughtless use for ordinary purposes of a superior grade of supplies,**
- Supplies of poor quality being discarded before full use has been made of them,**
- Excessive payments for both suitable and unsuitable goods alike,**
- The lack of concise and accurate records of purchase and consumption.**

Good purchasing requires

- Centralized, elastic systems of purchasing, distributing and accounting for supplies,**
- Complete and cordial co-operation between the buying and consuming departments,**
- A well-paid, adequately-staffed purchasing department, and a similarly staffed distributing or stores department, under separate experienced executives.**

III. — PURCHASING

Summary of Recommendations

ORGANIZATION.

1. That the purchasing of all supplies, of every class, and the sale of all salvage, be carried on by a separate unit, to be known as the Purchasing Department.
2. That the work of receiving, inspecting, storing and distributing supplies be carried on by a separate unit, to be known as the Stores Department.
3. That the work and duties of these two departments be clearly defined and that there be a separate head for each, **responsible directly to the Business Administrator.**
4. That the responsibility for cost accounts, appropriation accounts and stores controlling accounts, and for the passing of invoices, be transferred to the Accounting Department of the Board.
5. That there be close co-operation between the Purchasing and Stores Departments and with all other departments of the Board of Education.

PURCHASING PROPER.

Estimates.

1. That all purchasing records established in future should contain information as to quantities purchased, received and consumed, weekly or monthly, classified as to quality, size and purpose for which used, and also the number of consumers.
2. That all existing records which can be collected readily be classified and tabulated.
3. That the articles dealt in should be first classified and the units of each group standardized as to variety, quality, size, number of units per package, etc.

Standards of consumption and quality should be set by the **Chief Officer responsible for the use of the various articles.** For example, the Inspector of Educational Supplies should fix the standards for elementary school supplies, subject only to the Chief Inspector; and the Mechanical Engineer of the Board should fix the standards for fuel supplies, etc., subject only to the Business Administrator.

Standards should conform, as far as possible, to the customary trade standards and should be adjusted from time to time in order to meet changes in market conditions or industrial requirements. No alterations should be made, however, except after consultation with and the consent of representatives of the Departments affected.

Specifications.

4. That, after classification and standardization of supplies customarily bought by the Board, a new set of specifications be drawn up for each class of supplies, and that experts in the employ of the Board, the city and outside bodies, should be freely consulted.
5. That the specifications, forms of tender, general conditions, etc., be passed upon by the legal advisor of the Board, and finally accepted by the Board as standard. No additions or alterations should thereafter be permitted unless after consultation and with the consent of representatives of departments affected, and the approval of the legal advisor obtained. Major alterations should be approved by the Board as well.
6. That a repository of samples be established.

Contracts.

7. That the Purchasing Agent be authorized, subject to the supervision and approval of the Business Manager:
 - a—To advertise for, request and receive quotations and tenders for all supplies required by the Board from time to time;
 - b—To award or recommend the awarding of contracts on any plan which, in his judgment, will prove most profitable to the Board, or
 - c—To buy in the open market from time to time, with or without executing a formal contract, such supplies as, in his judgment, can be most advantageously purchased in this manner.
8. That the Purchasing Agent be held personally responsible for the proper performance of his duties, and for the accurate recording of all transactions and, therefore, be bonded and the Board secured against any losses which may be due to the negligence or misconduct of the Purchasing Agent.

Requisitions.

9. That requisitions for supplies from stores to be issued to schools, departments, etc., be sent to the Storekeeper.
10. That supplies be requisitioned for on group schedules so that requisitions for building supplies, for example, shall be made on

fixed days of the week, and requisitions for text books, stationery, etc., on other fixed days, and so on, throughout the classification.

11. That the Storekeeper shall, from time to time, requisition the Purchasing Agent (on standard printed forms, serially numbered) for the purchase of any supplies necessary to keep his stock on hand at all times up to a pre-determined minimum, and he shall also requisition for the purchase of any supplies not customarily kept in stock, but required by various Departments of the Board.
12. That requisitions necessitating purchases shall be approved as to "standard" and as to present need, by the particular officer having expert supervision of the work of the Department requisitioning, and shall be viséd by the Purchasing Agent.

Orders.

13. That no purchasing order, or order to do work, be given until (a) the covering requisitions have been properly approved; (b) tenders, quotations or estimates have been received and the price to be paid agreed on between the vendor and the purchasing agent; (c)* the accountant of the Board shall have certified that funds are at the credit of the appropriation to be charged, and available.
14. That every order shall quote the covering requisition number, the date and place of delivery, an adequate description of the quality of goods required, and shall clearly state the quantity to be purchased and the maximum amount to be paid. If goods are purchased under an existing contract, the contract number should be quoted.
15. That one copy of the order, or a memorandum, shall be forwarded to the requisitioner, and one to the accountant.
16. That the Purchasing Agent's copy of the order shall be filed according to the expected dates of delivery, and on that date, or on the day following, a clerk should ascertain what orders have been delivered, and trace those not yet filled.
17. That all purchases shall be finally recorded in some permanent form from which it will be convenient to determine variations in price, consumption, etc., from month to month, and that the filled orders shall be filed serially.

Receipt and Inspection.

18. That shipments to the stores should be received and counted by a clerk especially assigned to the duty. His count should be made independently of any quantities shown on delivery slip or order. His receipt to the vendor should be given subject to inspection and final acceptance by the storekeeper or an agent

* This is now in operation.

appointed by him, and copies, bearing a certificate of the inspector of the Board as to quality, should be forwarded to the accountant and to the Purchasing Agent. This inspection should ordinarily be complete within 48 hours after the receipt of the goods.

19. That shipments of oils and similar materials delivered either to the stores or to the schools should be sampled at irregular intervals and the samples tested, in accordance with the specifications, by an analytical chemist or at a testing laboratory.
20. That the present system of visual inspection of coal deliveries be augmented by occasional proper sampling and laboratory analysis.

Invoices.

21. That the vendor shall be required to forward with each shipment or delivery, a delivery slip. These delivery slips shall, in turn, be forwarded to the accountant at regular periods by the receivers, along with covering receiving slips.
22. That the vendor be required to render to the accountant of the Board duplicate invoices or statements in detail. These invoices or statements shall be checked by the accountant against prices shown on orders and as to quantities shown by receipts and, when finally approved for payment, shall be forwarded to the Treasurer, one copy being retained for reference in posting cost ledgers, appropriation ledgers, etc.
23. That each invoice presented in proper form should be checked and approved and ready for payment within 48 hours after its receipt or receipt of the goods.

Miscellaneous.

24. *Salvage:* That greater attention be paid to securing the maximum possible revenue from the waste products of the school system.
25. *Trust Funds:* Provided the necessary power exists or is later granted, that the by-laws of the Board be amended to provide for the installation, operation and financial control of cafeterias, students' stores, etc., in the Technical School, High School of Commerce and Collegiates.

PURCHASING

Organization of the Existing Department of Purchasing and Supplies.

The work of the Department, which has at its head the Superintendent of Purchasing and Supplies, may, for the purposes of this report, be divided into two sections:

I.—Purchasing.

II.—Stores.

The staff of the Department is made up of twenty-five persons, eleven of whom may be considered as devoting their time solely to the work of the Purchasing Division, the other fourteen being connected with the Stores. In addition, the telephone operator for the Board's central switchboard is under the supervision of the Superintendent of Purchasing and Supplies.

Duties of the Superintendent of Purchasing and Supplies.

The duties of the Superintendent of the Supply Department are laid down in By-law No. 82* of the Board of Education. Among other duties, he shall

“have charge of and superintend, under the direction of the Management Committee, the purchase and distribution of school and caretakers' supplies and requisites for all schools, and collect and receive from the various schools, books and supplies to be returned to the Board.”

It will be seen that two separate and distinct functions—purchasing and distributing—have been allocated to one official. The control of the flow of goods at the “outlet” should not be in the same hands as the control of the flow of goods at the “inlet.”

The Superintendent of Supplies is further required to “certify to all accounts passing through his office,” and must render an annual report of the “Values of all supplies on hand, particulars and values of the supplies distributed during the year, the supplies returned to his department during the year, and the estimated value thereof.....” A third function, therefore, that of accountant, is added to his responsibilities.

The Bureau believes that this three-fold assignment is not in the best interests of the Board of Education or of the citi-

* This by-law was amended on December 4, 1919, by substituting “Business Administrator and Secretary-Treasurer” for “Superintendent of Supply Department”. The Acting Superintendent was appointed “Superintendent of Purchasing and Supply Department” in February, 1920, and has been carrying out the duties here quoted, pending reorganization of this Department by the Business Administrator.

zens of Toronto, and is of the opinion that the functions of purchasing and stores should be separated and the accounting work transferred to the Accounting Department of the Board.

It is, therefore, recommended:

1. That the purchasing of all supplies, of every class, and the sale of all salvage, be carried on by a separate unit, to be known as the Purchasing Department.
2. That the work of receiving, inspecting, storing and distributing supplies be carried on by a separate unit, to be known as the Stores Department.
3. That the work and duties of these two departments be clearly defined and that there be a separate head for each, **responsible directly to the Business Administrator.**
4. That the responsibility for cost accounts, appropriation accounts and stores controlling accounts, and for the passing of invoices, be transferred to the Accounting Department of the Board.
5. That there be close co-operation between the Purchasing and Stores Departments and with all other departments of the Board of Education.

Office Staff and Work.

The Purchasing Section is located in the Administration Building and carries on the purchasing and accounting work of the department. The duties of the employees seem diverse and apparently are not allocated on a functional basis, nor are the lines of responsibility clearly defined. Much of the time of six members of the staff in this department is spent on accounting work, although, at present, neither the records nor the accounts are so kept as to yield a ready statement of the business transacted. As already stated, the Bureau is of the opinion that this work should be transferred to the Accounting Department.*

Estimates.

As the amount of money appropriated to the Purchasing Agent depends largely upon his own annual estimates, and as the quantity and quality of the supplies which can be issued to the principals, teachers and children are closely controlled by the amount of this financial support, the methods of preparing the estimates of this department are discussed here at some length.

Although the Bureau was informed that estimates for the coming year are based and prepared upon a knowledge of present market conditions, last year's consumption and probable consumption for the coming year, this appears to be a

* The Bureau is informed that some accounting work has since been transferred.

more optimistic statement than the records warrant. We are informed that in the preparation of the annual estimates, the procedure is for the chief of the department to call into consultation his secretary and his stores ledger-keeper. The previous year's estimates are consulted and as each item is reached the ledger-keeper is supposed to report the quantities issued during the past year. This is compared with the estimates of that year and increased in proportion to the increase in school attendance. From this latter figure is deducted the stock on hand, in stores. The balance is extended at last year's unit cost and becomes the estimate for the coming year.

It was discovered, first of all, that the stores ledgers are not kept in such a manner as to show readily the total issues from stores for the current or any other year. In August of this year, a statement of the issues for 1919 was requested by the Bureau. The preparation of this statement required the services of two clerks with an adding machine continuously for several hours, although the books had presumably been closed for eight months. If the estimates of any year are based on the consumption of the preceding year it would seem that such consumption figures should be more readily available.

A request to see a tabulation or chart of school attendance for the past several years, elicited the information that none was prepared. If the estimates are based on school attendance, some such chart would seem to be essential.

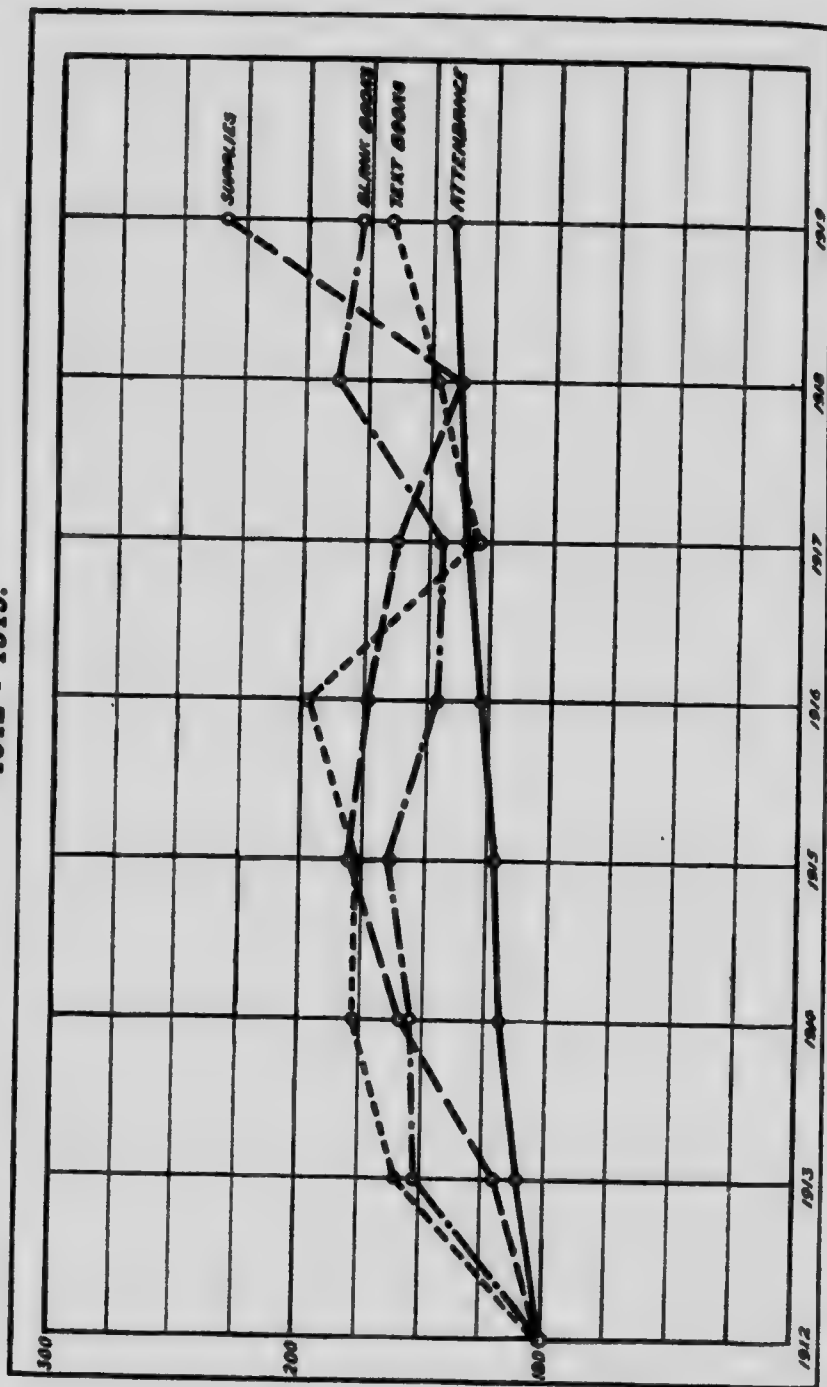
The estimates of the Technical School, High School of Commerce and Collegiate Institutes are prepared at these various schools, but are included in the estimates of the Superintendent of Purchasing and Supplies. An analysis of the estimates of the secondary schools showed a peculiar lack of variation, year to year, in the amounts of most of the items listed. These amounts, too, were usually given in round numbers.

Evidently the estimates are not based on consumption, attendance, or careful records of past years, and the result would naturally leave much to be desired on the score of accuracy.

During the Bureau's inspection of the school buildings, a year ago, a general complaint was made that both an insufficient quantity and an unsuitable quality of supplies were issued. It was claimed that requisitions were reduced without explanation being given, and that sometimes the principal was obliged to purchase necessary office supplies either out of his own pocket or from funds received from the sale of waste-paper, etc., brought in by the children.

The charts which follow show the detailed and average growth in actual and estimated expenditures for blank books, text books and miscellaneous school supplies compared with the growth of school attendance. The charts begin with 1912, the attendance and expenditures in that year being given the index value of 100.

TORONTO PUBLIC SCHOOLS
Estimated Expenditure for Various Supplies Compared with Attendance
1912 - 1919.



Providing purchases had been made with due regard to consumption and assuming no increase in commodity prices since 1912, the expenditure curves should have paralleled the attendance curve, provided that only one year's supplies were bought in any one year or charged in the expenditures of that year. However, prices did increase, particularly after 1914. The expenditure curve, therefore, should have been drawing away from the attendance curve. It will be seen, however, that there is no apparent relation between the attendance and expenditure curves.

The noticeable fluctuations in the expenditure curves may be due to several causes:

1. **Fluctuations in prices:** This is hardly the reason in this case, as prices have advanced fairly constantly since the war, although receding slightly in 1919.
2. **Fluctuations in consumption:** Consumption of supplies, such as text books and stationery, should follow closely the attendance record. Judging by the fairly even growth of the attendance curve (as there are no dependable consumption records), the cause of the expenditure fluctuations is not here, although records of issues from stores, in the several years, show remarkable variations.
3. **Erratic buying:** Over-purchase in one year, followed by under-purchase in the next. This seems to answer the natural question, "Why such variation in expenditures for school supplies?" This assumes, of course, that the appropriations are charged with the purchases of a year, not with the amount consumed in that year.

The only valid reasons for unusually large purchases in any one year are:

An expected scarcity of available supply;

An expected sudden increase in prices in the coming year.

If either or both of these reasons explained the purchase of text books in 1916, for instance, they would equally explain the purchase of similar supplies in that year, yet we find that the purchase of text books (the price of which is fixed by the Provincial Government and has not recently advanced) was greatest, and of other supplies least, in that year.

It would seem that, to avoid over and under-purchasing, a careful estimate of the probable consumption of supplies during the coming period is a prime necessity. The preparation of such an estimate requires precise information as to past consumption, and this can be obtained only from accurate records extending over a period of years.

The Bureau, therefore, recommends:

1. That all purchasing records established in future should contain information as to quantities purchased, received and consumed, weekly or monthly, classified as to quality, size and purpose for which used, and also the number of consumers.
2. That all existing records which can be collected readily be classified and tabulated.
3. That the articles dealt in should be first classified and the units of each group standardized as to variety, quality, size, number of units per package, etc.

Standards of consumption and quality should be set by the Chief Officer responsible for the use of the various articles. For example, the Inspector of Educational Supplies should fix the standards of elementary school supplies, subject only to the Chief Inspector; and the Mechanical Engineer of the Board should fix the standards for fuel supplies, etc., subject only to the Business Administrator.

Standards should conform, as far as possible, to the customary trade standards and should be adjusted from time to time in order to meet changes in market conditions or industrial requirements. No alterations should be made, however, except after consultation with and the consent of representatives of the departments affected.

Consumption records, as outlined, have an added value if combined with market reports, in that they enable the purchasing agent to time his purchases and deliveries so as to effect savings in prices paid and in storage space. Furthermore, with such records at hand it would be possible to guarantee to intending contractors, the number of articles to be required on any proposed contract, and the time when delivery would be required.

Such data would be more usable if the variations were shown graphically, and the per capita figures worked out. From such charts, the average consumption within given periods of time could be readily found and finally a standard quantity of any article to be consumed within a given period should be fixed.

If these charts are carefully made the probable number of consumers, quantities to be consumed, etc., can be obtained by measurement and will be sufficiently accurate for ordinary estimates, if the general tendency of the graphs be considered at the same time. It will be found worth while, when the time comes, to check these estimates, which also should be plotted, with the actual results experienced.

Specifications.

The preservation of the work of standardization can be best effected by forming a repository of standard samples and by preparing standard specifications.

Good specifications should be definite, clear, comprehensive, and the conditions of purchase, delivery, inspection, etc., should be as fair to the vendor as to the buyer. The specifications in use in the Department of Purchasing and Supplies cannot be called good specifications.

They are indefinite as to quality. As an illustration, the following quotation is abstracted from the specification for coal:*

"The soft coal is to be of the best quality of smokeless lump or other soft coal and to be named with prices in tender, and screened over a 2 $\frac{3}{4}$ -inch mesh, or Mine Run closely screened at the mine and lumpy or Standard Mine Run."

There is certainly room here for a variety of interpretations. "Best quality of smokeless lump" or "other soft coal" are not synonymous terms. There is no reference to the heating value of the coal, percentage of ash, volatile matter, etc.

The hard coal is "to be of the best quality produced by the mine named in the tender" and "all is to be free from stone and slate." This phrase occurs in the single paragraph describing the HARD coal desired, so that apparently stone and slate might be offered with the soft coal. As in the case of soft coal, there is no reference to heating value, percentage of ash, etc. In fact, the phrase quoted is the sole definition of "hard coal" found in the specification.

They are indefinite as to quality. The same coal specification contains a schedule of quantities of various kinds and sizes of coal which "it is expected will be required"; "about one-half of the above quantities will be ordered for delivery in July and August, and the balance for delivery in December or from time to time as needed"; "It is understood that the contractor shall furnish any further supply that may be required," but there is neither quantity nor time limit fixed.

In other specifications, this clause occurs: "The Board does not in any way bind itself to take or accept the quantities set forth in said schedule, the same being merely an estimate of the probable requirements for the year."

* It is, of course, true that the condition of the coal market during and since the war necessitated a considerable relaxation of the quality restrictions. These conditions, however, did not exist in 1918, when the specifications for 1914 were written, and these vary but little from the present specifications. There is no reason why all usual quality defining clauses should not be included in the standard specifications, and, when necessary, any considered too drastic could be scored out.

They are indefinite as to methods of inspection. In the specification for oils, it is demanded that "the oils and turpentine are to be pure and free from adulterants, and to stand the usual analytical test, if not up to the standard the contractor will be required to pay the cost of the analysis and remove the materials and to replace them with oil and turpentine of the quality called for." The "usual analytical test" is not defined, and would be difficult to define in one paragraph in a specification covering several kinds of oils used for widely different purposes. Floor oil, lubricating oil and fuel oil are included in this specification, as well as linseed oil, turpentine and gasoline. The "standard" and "quality called for" above are defined by such terms as "best quality," "heavy body," etc.

They are indefinite as to place and time of delivery. "The goods are to be delivered at any one of the schools where directed" appears in the specification for science apparatus. In other specifications neither time nor place of delivery is mentioned, and in a specification for "sewing material", it is announced that "the supplies are to be delivered at the storerooms of the Board, or at such other places in the city as Board may direct, or at such other times and in such quantities as may from time to time be required."

They are not clear. The examples already given illustrate this feature. In addition, some specifications contain a schedule of articles and inform the contractor that he must submit samples. It cannot be clear to him whether the best grade, cheapest grade, or something in between is wanted. If he quotes a low price and submits a sample of a low grade, his tender may be rejected because supplies are unsuitable, or if he quotes on and submits a high grade, his tender may be likewise rejected as being too high. In fact, this has happened within the past year.

They are not fair to vendor and buyer alike. In none of the specifications is there a provision that additions or alterations to the form of tender or accompanying specifications and conditions would cause the tender to be thrown out as informal. The effect is that a contractor without experience in dealing with the Board would assume that all conditions would be effective and might tender accordingly, while another, with such experience, could practically write his own specifications and would tender accordingly. In a recent award of a contract for certain kinds of paper, one successful tenderer altered the provisions as to the duration of the contract from one year to thirty days, and demanded an increased price for paper ordered after the thirty days had elapsed. It was stated that this alteration was unnoticed at the time of awarding the contract. The acceptance of such unauthorized additions gives the Board no real advantage in price and is most unfair to other tenderers.

The contractor is required "to execute a contract for the due performance of the terms of the tender" and to be bonded for due fulfilment thereof, but the Board does not bind itself to take or accept the quantities set forth in said schedule.

The specifications are not standardized. Some include conditions applying to tendering, others do not; some are to be signed by the Purchasing Agent and some are to be signed by the tenderer; some include several schedules in which the same articles are repeated, but in varying quantities.

The Bureau recommends:

1. That, after classification and standardization of supplies customarily bought by the Board, a new set of specifications be drawn up for each class of supplies, and that experts in the employ of the Board, the city and outside bodies, should be freely consulted.
2. That the specifications, forms of tender, general conditions, etc., be passed upon by the legal advisor of the Board, and finally accepted by the Board as standard. No additions, or alterations, should thereafter be permitted unless after consultation and with the consent of representatives of departments affected, and the approval of the legal advisor obtained. Major alterations should be approved by the Board as well.
3. That the repository of samples, already referred to, be established. (Patented goods, if they can be described, usually require a specification so complex as to be unintelligible. Lengthy schedules of petty supplies, similarly, would require extensive and complex specifications. In such cases, it is more desirable to buy by sample.)

The terminology used must be intelligible to the dealers whom it is desired to interest. While precision and definiteness may be secured by technical and scientific terms, the effect will be lost if the dealers do not know whether or not their goods answer the description. On the other hand, the neglect to use technical terms and the careless habit of using a trade name adding "or equal" is equally confusing. If it is necessary to use trade names, those brands found acceptable to the buyer may be added as a foot-note to the specification. The best results, however, will be obtained if, whenever possible, the trade terminology is used.

Contracts.

At various times in the year, the Management Committee, through the Superintendent of Supplies, has asked for quotations, usually on a yearly contract basis, for practically all classes of supplies—coal, stationery, equipment, etc. The resulting tenders and any samples submitted were usually referred to the Superintendent and the contracts were then

awarded on his recommendation. Incidental supplies are purchased by the Department at various times through the year, quite often without consideration of the amount to be paid for them.

This system of awarding most of the contracts on a yearly basis makes it practically impossible for the Purchasing Agent to take advantage of fluctuations in the market, and has, furthermore, proved to be a hindrance to securing the best prices on the bulk of supplies used in the year.

By making the length of the contract and the period in which bids are received synchronize with those ebbs of the market when conditions are most favorable to the buyer, lower prices will usually result. A contract for three months, in an unstable market, will on the average result in lower prices for the buyer than one for twelve months. Under prevailing market conditions dealers are unwilling to commit themselves to a close price on a long-term contract and, if they bid at all, will probably quote a much higher price to be on the safe side. Recently some dealers declared that they could not bid on the Board's contracts unless the terms were altered.

Some supplies, however, on which the market is continually shifting, might more advantageously be purchased on a long term, price-agreement form of contract. The following method has been used with some success. The buyer defines a **base or index market price** for the commodity to be purchased and dealers are requested to tender so many cents above or below this base. As the market fluctuates, this base or index price varies with it and the amount paid to the contractor for goods bought under these varying market conditions will vary correspondingly. The index price might be established as the monthly average of market quotations reported in some reliable trade journal.

Under such a plan neither vendor nor buyer gamble on the tendency of the market. The vendor is assured a fair profit and the buyer pays a fair price for the goods, plus an equitable charge for delivery and other service.

It is recommended:

That the purchasing agent be authorized, subject to the supervision and approval of the Business Manager:

- a—To advertise for, request and receive quotations and tenders for all supplies required by the Board from time to time;
- b—To award or recommend the awarding of contracts on any plan which, in his judgment, will prove most profitable to the Board, or
- c—To buy in the open market from time to time, with or without executing a formal contract, such supplies as, in his judgment, can be most advantageously purchased in this manner.

It is further recommended :

That the Purchasing Agent be held personally responsible for the proper performance of such duties, and for the accurate recording of all transactions and, therefore, be bonded and the Board secured against any losses which may be due to the negligence or misconduct of the Purchasing Agent.

Requisitions.

The route taken by a requisition for supplies to be purchased,* from its inception in one of the schools to the payment of the invoice by the Treasurer of the Board, is intricate and involved. The attached chart shows the path taken through the various processes. The requisition, as initiated in the school, comes by mail to the Superintendent's assistant for approval, and is then turned over to the Order Clerk.

The amount requisitioned for is sometimes reduced without notification to the requisitioner. Neither is he notified by whom and when goods are to be delivered, nor is there any systematic follow-up of deliveries.

It is recommended :

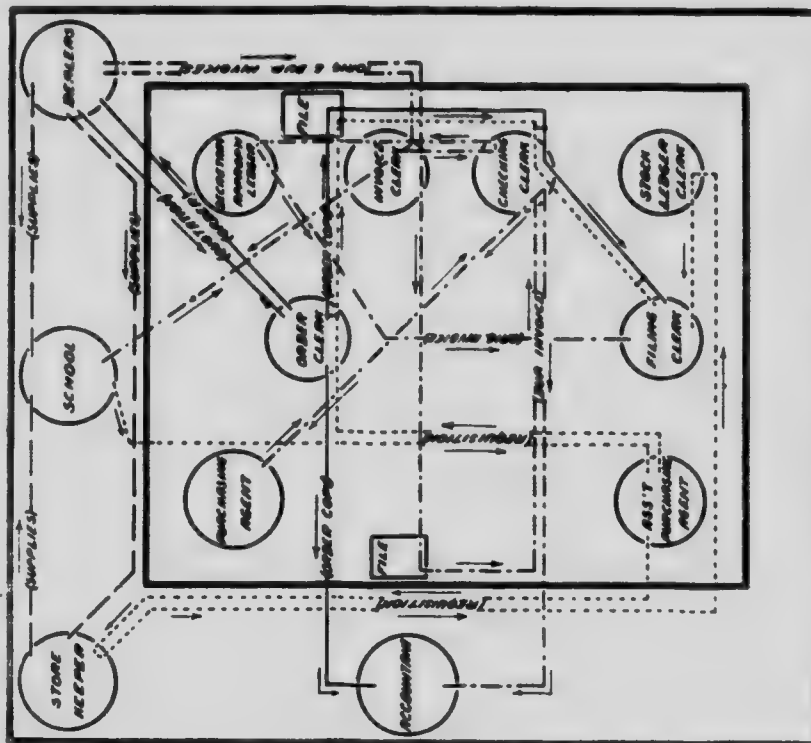
1. That requisitions for supplies from stores to be issued to schools, departments, etc., be sent to the Storekeeper.
2. That supplies be requisitioned for on group schedules so that requisitions for building supplies, for example, shall be made on fixed days of the week, and requisitions for text books, stationery, etc., on other fixed days, and so on, throughout the classification.
3. That the Storekeeper shall, from time to time, requisition the Purchasing Agent (on standard printed forms, serially numbered) for the purchase of any supplies necessary to keep his stock on hand at all times up to a pre-determined minimum, and he shall also requisition for the purchase of any supplies not customarily kept in stock, but required by various departments of the Board.

This shall not prohibit any department from making requisitions for such material as is required for immediate use, **but not kept in stores**, directly on the Purchasing Agent and for delivery direct to the Department.

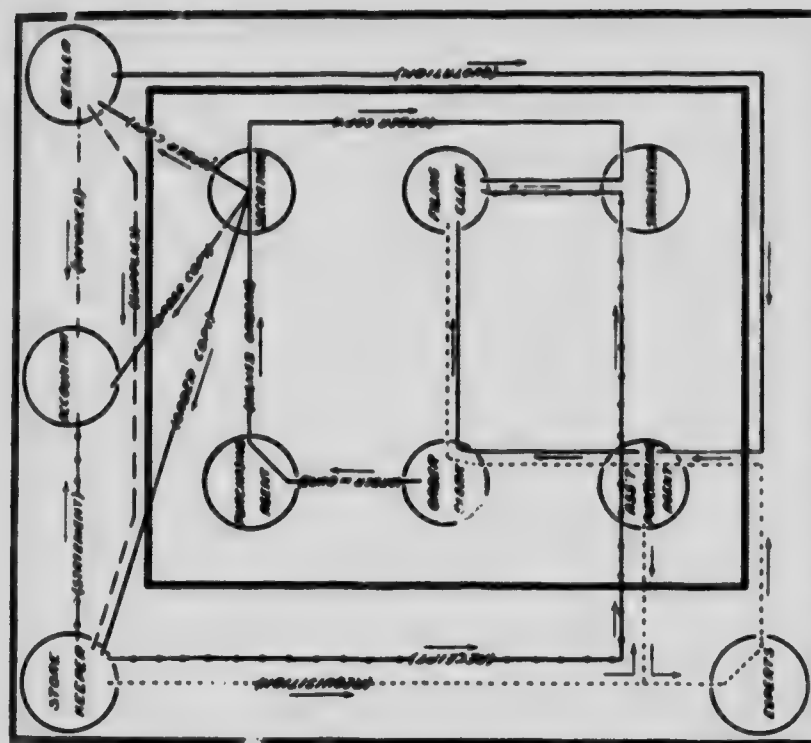
4. That requisitions necessitating purchases shall be approved as to "standard" and as to present need, by the particular officer having expert supervision of the work of the Department requisitioning, and shall be viséd by the Purchasing Agent.

* Requisitions to be filled from stores take a slightly different course, the requisition itself, after approval, being sent to the store-room.

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Present Purchasing Routine



Suggested Purchasing Routine.

Orders.

At present, if the goods requisitioned are not on contract, the Order Clerk places an order with some selected firm, often without previous quotation, or inquiry as to cost. This order is made out in triplicate: the original goes to the dealer, the duplicate is attached to the requisition, and the triplicate copy is forwarded to the accountant, presumably for purposes of accounting control. However, as the majority of the orders do not specify the prices to be paid and give but the briefest description of the goods required, the information as supplied to the accountant is of no value*.

An examination in March, 1920, of a file of presumably unfilled purchase orders revealed 657 orders, of which 567 showed no indication of the price to be paid. One month later the file was again examined and 505 orders were counted, of which 453 showed no price.

Some of these orders dated back to October, 1918. On the first examination 268 orders were dated before January 1st, 1920, and on the second examination, after a clerk had been assigned the task of verifying and getting delivery on these orders, 222 were dated before January 1st, 1920.

These figures may possibly indicate a duplication in issuing orders, but certainly show a failure to follow-up for delivery. It does not seem possible that a school principal or department head could wait for so long a time for necessary supplies.

It is recommended:

1. That no purchasing order, or order to do work, be given until (a) the covering requisitions have been properly approved; (b) tenders, quotations or estimates have been received and the price to be paid agreed on between the vendor and the purchasing agent; (c)† the accountant of the Board shall have certified that funds are at the credit of the appropriation to be charged and available.
2. That every order shall quote the covering requisition number, the date and place of delivery, an adequate description of the quality of goods required, and shall clearly state the quantity to be purchased and the maximum amount to be paid. If goods are purchased under an existing contract, the contract number should be quoted.
3. That one copy of the order, or a memorandum, shall be forwarded to the requisitioner, and one to the accountant.
4. That the Purchasing Agent's copy of the order shall be filed according to the expected dates of delivery, and on that

* The Bureau is informed that this weakness is being remedied.

† This is now in operation.

date, or on the day following, a clerk should ascertain what orders have been delivered, and "trace" those not yet filled.

5. That all purchases shall be finally recorded in some permanent form from which it will be convenient to determine variations in price, consumption, etc., from month to month, and that the filled orders be filed serially.

The Bureau suggests that if requisitions be scheduled as suggested, all requisitions for similar articles, or similar classes of articles, might be combined in one purchase order. These purchase orders would then be automatically scheduled.

In order to get competitive tenders or quotations on open market orders, the trade might be notified by telephone that certain supplies are required and that quotations will be received on an appointed day. Another plan that has been fairly successful is the bulletin board method of advertising. Lists of supplies to be purchased, together with the specifications, are hung on a public bulletin board outside the office of the Purchasing Agent. Dealers or their agents are requested to consult this board daily, and hand in their quotations directly to the Purchasing Agent, who will, of course, accept the best offer and issue the purchase order accordingly.

Receipt and Inspection.

The majority of the general purchases are received at the Stores on Robert Street, some at the Berryman Street Stores, and the balance at the various schools.

Each shipment by the vendor is supposed to be accompanied by a delivery slip or invoice stating the number of parcels and quantity of goods in the shipment.

Goods received at the school directly from vendors are presumably checked with the delivery slip by the principal or the assistant principal, or in some cases by the caretaker. No report is made to the central office, until the vendor's monthly statement, forwarded from the central office, is received at the school for the principal's certificate as to quantity and quality. The principal does not know what quality was ordered and must assume that the goods he received are of the quality ordered. The vendor's statement may not reach the school for a month after delivery of the goods and, in the meantime, the central office has no knowledge of what supplies have been delivered or the amount to be charged for them. It is not impossible that the supplies have been used before the bill is received, and in such a contingency it is difficult to successfully protest an apparent overcharge.

As many invoices (statements) go astray between the school and the central office, this system tends to delay payment for goods and leaves the accounting system without necessary information.

Goods should not be purchased for delivery direct to the schools, except in emergency, and in such cases a copy of the order, or some notification of what has been ordered, should be given the principal or other official interested. A standard "receiving slip" or receipt form should be forwarded by the principal to the accountant's office, as soon as goods have been received, examined and checked, and this should end the transaction so far as he is concerned.

On the receipt of a shipment of goods at the stores, the custom is for any warehouseman not otherwise employed to check the quantities received against the corresponding items on the delivery slip. From this count or tally a receiving slip is made out for the central office and the item posted in a so-called "receiving book".

It is not the custom to inspect the goods as to quality at this time. This is supposed to be done later by the storekeeper. It is very doubtful whether this inspection, even if made regularly, is of much value. The storekeeper can have but little knowledge of the quality specified to be delivered, for two reasons: one is that the copy of the purchase order received from the Purchasing Agent does not usually specify the quality, and the other is that the specifications with which he should be familiar, leave much to be desired in the matter of definition.

Deliveries of coal are received and inspected at the schools, either by the caretaker or by one of the three or four inspectors who are appointed yearly. The inspection is sometimes made at the dealers' bins when the coal is being loaded for delivery, and consists, in any case, of a visual examination only. Only two records of a physical and chemical test of the coal bought since 1915 were seen. In one case, five small lumps of coal were sent as a sample to the Technical School for analysis. Such a sample precludes any worth-while estimate of the value of the coal. The specifications of the American Society for Testing Materials require many samples of several hundreds of pounds each to be taken and mixed together, quartered and mixed again, and again quartered and mixed, and so on, before the result of the analysis can be accepted as representative.

Shipments of fuel oil and other oils receive only a superficial inspection, if any. The samples submitted by the dealers with their tenders are analyzed, as an aid to the selection of the best offer, but apparently the actual purchases are not tested.

The Bureau recommends:

1. That shipments to the Stores should be received and counted by a clerk especially assigned to the duty. His count should be made independently of any quantities shown on delivery slip or order. His receipt to the vendor should be

given subject to inspection and final acceptance by the storekeeper or an agent appointed by him, and copies, bearing a certificate of the inspector of the Board as to quality, should be forwarded to the accountant and to the Purchasing Agent. This inspection should ordinarily be complete within 48 hours after the receipt of the goods.

2. That shipments of oils and similar materials delivered either to the stores or to the schools should be sampled at irregular intervals and the samples tested, in accordance with the specifications, by an analytical chemist or at a testing laboratory.
3. That the present system of visual inspection of coal deliveries be augmented by occasional proper sampling and laboratory analysis.

Even if no reduction in the price paid for coal of poor quality can be obtained, on account of market conditions and terms of the contract, an exact knowledge of the true value of the coal supplied would be worth much more than the cost of analysis.

The present coal inspectors are now employed on worthwhile work when checking the weight of the coal sent to the schools and in controlling the amount of apparent slate, stone and dirt which is included in the coal. Their reports should be made daily and in writing.

Invoices.

At present, supplies may be delivered by the dealer (or contractor) direct to the school or may go forward through the store-room. In either event, monthly statements, in duplicate, are sent to the office of the Superintendent of Supplies. The original is forwarded to the school, or stores, for certificate as to receipt.

On return from the school, properly attested, the invoices (with the exception of those for certain specified supplies) are compared by the invoice clerk with the copies of the purchase orders as to prices and for allocation of the charges against appropriations. Since the orders, as a rule, do not show prices to be paid, the comparison would seem to be of slight value. The other invoices mentioned (for certain specified supplies) are checked by the appropriation ledgerkeeper. This is not shown on the sketch in order that the ordinary routine may be left as clear as possible.

It should be noted that, as a rule, neither the requisition nor the purchase order are viséd by the Superintendent of Supplies. When the invoice is prepared for payment, it receives his certificate, although he can have had but superficial knowledge of the transaction. His signature (or initial) on the invoice adds but little to its value as a voucher, but his signature to the purchase order is vital.

It is recommended:

1. That the vendor shall be required to forward with each shipment or delivery, a delivery slip. These delivery slips shall, in turn, be forwarded to the accountant at regular periods by the receivers, along with covering receiving slips.
2. That the vendor shall be required to render to the accountant of the Board duplicate invoices or statements in detail. These invoices or statements shall be checked by the accountant against prices shown on orders and as to quantities shown by receipts and, when finally approved for payment, shall be forwarded to the Treasurer, one copy being retained for reference in posting cost ledgers, appropriation ledgers, etc.
3. That each invoice should be checked and approved and ready for payment within 48 hours after its receipt or receipt of the goods.

Purchase Records.

A diversity of supplies—chalk, coal, books, bricks, sugar, sand, linen, lumber, grate bars for furnaces, etc.—is purchased either by or through the Superintendent of Supplies.

There are no complete purchase records. In some instances, purchases are made without issuing a purchase order and, in such cases, the invoice is the only record of the transaction. A complete statement of the purchases for a given period could not, therefore, be obtained.

From the appropriation ledgers, however, it was found possible to approximate the value of total purchases of certain supplies. The analyses of the transactions in this department for 1919 were prepared from these ledgers. These statements, while they agree with the ledger balances, may or may not be either complete or accurate, as the ledgers are not under accounting control. They are presented, therefore, only as indicative of the amount of business done.

Gross Expenditure for Supplies: In 1919, the money value of the bulk of such purchases, which are made directly by the Superintendent of Supplies and Purchasing, was about \$377,555.11, made up as follows:

		Per Cent. of Total.
For Technical Schools.....	\$ 62,417.75*	16.6%
“ High School of Commerce.....	11,756.49*	3.2%
“ Collegiate Institutes.....	39,346.17	10.4%
“ Public Schools.....	257,978.88	68.0%
“ Public Schools—Special.....	6,055.82	1.8%
\$377,555.11†		100%

* Does NOT include purchases for resale to pupils, of canteen, lunch room, or stationery supplies.

† Includes supplies for school offices, a small sum for salaries, wages, etc. Since 1919, all salaries and wages are reported as such, and are not included in statements of expenditure for supplies.

This sum does not include purchases of supplies of an undetermined value made by the former Building Department, nor does it include an unknown quantity of supplies purchased by the public school principals, for school equipment or for sports, out of funds under their control.

Expenditure for Public School Supplies: As the expenditure for supplies for public schools was about 68% of the total, this was analyzed first. The following, in condensed form, shows the distribution for 1919:

		Per Cent. of Total.
Text Books.....	\$ 13,211.82	5.1%
Domestic Science and Manual		
Training Supplies.....	18,115.19	7.0%
Class-room Supplies.....	47,363.33	18.4%
Kindergarten Supplies.....	5,524.69	2.1%
Light and Heat.....	130,053.60	50.4%
Miscellaneous	43,710.25	17.0%
	<u>\$257,978.88</u>	<u>100%</u>

Of these items, that for "Light and Heat" being the greatest, was analyzed, with the following result:

Gas	\$ 3,296.00	
Electricity	10,550.85	
Fuel, etc.	116,206.75	\$130,053.60

The item for "Fuel, etc." is made up of:

Wages of Inspectors, etc.....	\$ 837.63	
Coal, etc., for Public Schools.....	115,369.12	116,206.75

A statement of the tonnage bought would have been of value but, as with other supplies, no complete quantity records were available.

Expenditure for Supplies for Technical School, High School of Commerce and Collegiate Institutes: This was made up as follows:

	Technical School	High School of Commerce	Collegiates
Academic Supplies	\$ 1,000.05	\$ 348.45	\$ 1,138.45
Technical and Scientific	28,827.93	1,606.14	2,986.74
Light, Heat and Water	22,049.80	5,001.88	18,192.02
Housekeeping	2,044.00	414.09	1,215.81
Administration & Miscellaneous	8,496.87	4,385.93	5,627.45
Administration Building			10,185.80*
	<u>\$62,417.75</u>	<u>\$11,756.49</u>	<u>\$39,346.17</u>

* Since 1919, this item is included under administrative expenses and is, therefore, not now reported as if an expenditure for Collegiates.

Coal: It will be noted that the purchase of the annual supply of coal for Public Schools is, in point of magnitude, the most important purchase of all.

The records of coal purchases for 1914 to 1917, inclusive, were examined superficially, while those for 1918 and 1919 were examined in more detail. Book records of fuel purchases for all schools and departments of the Board show the following total expenditures, including cost of inspection:

1914	\$ 96,635.84
1915	114,697.40
1916	117,452.01
1917	170,277.81
1918	212,103.17
1919	153,126.21
	<u>\$864,292.44</u>

This amount of \$864,292.44 for the six years was distributed as follows:

Public Schools.....	\$ 706,221.05
Technical School, Collegiates, High School of Commerce, and Administration Building	158,071.39
	<u>\$864,292.44</u>

It would seem that tenders on the entire annual requirements of the Board, in bulk, are not desired, since invitations for tenders for coal are issued separately for Public Schools, Collegiates, and the Technical School and High School of Commerce. This plan was followed in 1920, the estimated tonnage required being as follows:

	Smokeless, Soft or Semi- Bituminous	Soft Coal Screenings	Hard Coal			
			Grate	Egg	Stove	Nut
Public Schools	10,000 tons	250 tons	500	6,500	1,500	500 tons
Collegiates and Administration Building	1,300 "	.....	250	400	150	150 "
Technical School .....	.....	2,000 tons	.....	.....	.....	.....
High School of Commerce	350 "	.....	.....	300	.....	.....
The total requirements appear to be.....	11,650 tons	2,250 tons	750	7,200	1,650	650
Or a grand total of	24,150 tons					

There seems little to be gained by dividing the coal purchases in this manner. Contracts for this quantity of coal, about 500 car-loads, might well be made directly with the mine operators.

Would not the consolidation of the purchase of any one class of supplies, in normal times, make the business more attractive to wholesalers and manufacturers?

Assuming purchase directly from the mine operators or wholesalers, after proper inspection and sampling, deliveries might be made from the cars to the schools, to the limit of the capacity of their bins, either on a separate contract, or by the Board's own trucks and employees. It might be that co-operative arrangements could be made with the Commissioner of Works, through the City Council, for the use of the several city yards and sidings in which to store a surplus supply of coal during the winter months when these yards are used but little.

Text Books and Other Class-room Supplies: The Superintendent of Supplies, in his annual report, tabulates the quantities of certain stores issued to Public Schools. By comparing this information with the Stores ledger balances, Table 1, which follows, was compiled, as an approximation only, of the purchases of Stationery and Text Books for the year 1918. The ink supply for the schools is manufactured at the Robert Street Stores. The cost per gallon has been reported uniformly at 25 cents since 1911, although the cost of the ink powder has increased, as also have wages.

TABLE I.

**Some Estimated Purchases of Stationery for
Public Schools for the Year 1918**

CLASS	On Hand Jan. 1, 1918	Issued in 1918	On Hand Jan. 1, 1919	Estimated Quantity Purchased
BLANK BOOKS:				
Work Books A.....	74,744	322,724	235,283	483,263
" " B.....	57,818	32,712	23,819	48,713
Note Books.....	87,376	105,972	15,707	61,303
Exercise Books.....	84,277	105,542	62,500	83,765
Dictation Books.....	101,255	99,023	50,776	48,544
DRAWING PAPER (Sheets)				
Junior A.....	315,500	898,800	1,091,500	1,674,800
Senior B.....	72,000	587,800	622,000	1,197,800
Special C.....	271,500	30,600	235,000	— 5,900*
Parchment.....	337,000	111,100	219,500	— 6,400*
EXERCISE PAPER (Sheets)				
Cap Size.....	360,000	2,328,000	504,000	2,472,000
Note Size.....	2,342,000	3,123,400	1,628,000	2,409,400
Manual Training Paper.....	909,600	753,530	719,800	563,730
PENS AND PENCILS (Gross)				
Pens.....	3,286	5,672	460	2,846
Pencils.....	3,090½	1,755	1,499½	164

* It will be noted that although, apparently, no "special" or "parchment" paper was purchased, there are, respectively, 5,900 sheets and 6,400 sheets not accounted for. Either the issues are not fully reported or the stocks on hand are incorrect. While the amount involved is small, yet these discrepancies indicate that none of the returns can be accepted as accurate.

On the basis of this table, the stock of stationery on hand at January 1st, 1919, appears to have been much too great. In some cases, it will be noted, more than a year's supply was carried over. If, instead of the present bulk deliveries, arrangements could be made with the dealers whereby deliveries of a minimum quantity would be made monthly, the investment in stored supplies could be kept lower and the capacity of the store-room would not be overtaxed.

Miscellaneous.

Salvage: Only an indifferent effort has been made to turn the waste products of the school system into cash. In 1919, for example, only \$833.04 was received from the sale of scrap of all sorts. Of this amount

\$512.14	was received from the sale of worn-out text-books;
50.17	" " " " " waste-paper;
270.73	" " " " " scrap metals, etc.

Collections from the schools are not regular, nor is the list of schools apparently checked over to see that all are returning their proper quota. The records for 1919, on analysis, showed that 17 schools made no return of waste in any form and 44 other schools were credited with the return of old text-books only. Only one Collegiate is credited with a sale of waste-paper or books.

These schools may or may not have forwarded their scrap to the stores to be sold there. The Stores and Administration Building together are credited with total sales amounting to only \$86.47, of which \$50.49 was derived from the sale of old text-books, and the balance, \$35.98, from the sale of 7,062 pounds of waste-paper. Part only of this paper was waste wrapping paper accumulated at the Stores, the balance being newspapers, etc., collected at the Administration Building.

The Bureau estimates, from fragmentary records of sales, that about 7,000 pounds of wrapping paper, etc., would be accumulated at the Stores alone in the course of a year. It would appear, therefore, that the schools are sending little waste-paper (other than books) to the Stores and, further, that the total possible revenue is not being received from stores waste. It was further noted that no revenues from the sale of empty packing cases were reported, although, we are informed, these cases (of which there are many in a year) are carefully opened to avoid damage, and removed from the Stores at intervals to some unrecorded destination.

It is presumed that these packing cases are returned to the vendors as, in the purchase of some articles, it is provided that prices shall be net, free of all charges or discounts for cases. Whether so returned or not, a record should be kept of the receipt and disposal of marketable boxes and barrels. Any cases

not returnable to vendors under conditions of purchase of goods should be sold and the money included in the Board's revenues.

The Bureau has not sufficient data on which to base a worth-while estimate of the possible revenues from waste, but is of the opinion that the Board would be well repaid for the comparatively small expenditure necessary to bring this source of revenue under control.

A large quantity of waste paper is burnt in the furnaces of some of the schools because no adequate means have been provided for collection. A recent fire prevention measure prohibiting the accumulation of waste paper in the schools tends to encourage this method of disposal. Last season this paper was worth at least from \$20.00 to \$30.00 per ton. It is recommended that caretakers be instructed to save all waste-paper, in suitable bags provided for the purpose. The accumulation should be stored only in fireproof rooms, which should be provided in any event for the storage of oils, etc.

inventory and should appear on the stores issue or delivery. This paper and all other valuable salvage should be regularly collected by the trucks of the Board on their return trips and brought to one central depot. To reduce the fire hazard, the paper should be baled the day received.

The receipt of waste at the stores should be handled as are receipts of ordinary stores, and charged to the inventory. Similarly, the delivery to the contractor should be credited to the sheets. Contracts for the sale of this material should be handled as are contracts for the purchase of supplies. A sliding scale plan of payment might be used to advantage.

The amount of waste received, to be sold later, might be credited to the individual schools, and the resulting revenues might well be allocated to the games and entertainment funds of the schools, in proportion to the quantities of waste turned in.

Trust Funds: At both the Technical School and the High School of Commerce, cafeterias are operated for the benefit of the pupils, and, in addition, a supply of text-books, stationery, etc., is carried for resale to pupils at as near cost price as possible.

At both the Technical School and the High School of Commerce, cafeterias are operated for the benefit of the pupils, and, in addition, a supply of text-books, stationery, etc., is carried for resale to pupils at as near cost price as possible.

This excellent policy might well be enlarged to include all High Schools and Collegiates in the city, but should be validated by legislative action. In 1904, the Board did pass a resolution sanctioning the operation of a supply room in the Tech-

nical School, but no similar action appears to have been taken with regard to the cafeteria, and the supply room and cafeteria in the High School of Commerce.

As this motion was probably without effect after the election of the new Board and in order to establish these cafeterias and students' stores on a secure basis,

The Bureau recommends—provided the necessary power exists or is later granted—that the by-laws of the Board be amended to provide for the installation, operation and financial control of cafeterias, students' stores, etc., in the Technical School, High School of Commerce and Collegiates.

The funds accumulated over a number of years from fractional profits on supply room trading—between \$2,000 and \$3,000—were formerly kept in personal banking accounts, one of which was in the name of the Superintendent of Supplies. However, some time during the past summer, these monies were transferred to the Treasurer of the Board and it is understood are now under the control of the Board's Accountant. The former practice of paying by personal cheque for goods bought for these stores has been discontinued and payments are made as for all other purchases. This indicates progress towards centralized financial control of the various activities of the Board and is to be commended.

In many of the schools, funds for sports, entertainments and other purposes have been accumulated by various means. These funds are, of course, under the control of the school, represented by the principal and teachers. The Bureau believes that the fine spirit underlying the promotion of a school fund should be fostered by the Board and recommends that, as a measure of protection to the school principals, the Board should provide for an annual audit of these funds.

I V.—S T O R E S

Summary of Recommendations

1. That the work of receiving, inspecting, storing and distributing supplies be carried on by a separate unit, to be known as the Stores Department, under a separate head, responsible directly to the Business Administrator.
2. That all main stores, excepting furniture, be consolidated at 7 Berryman Street.
3. That 27 Robert Street be used as a repair shop, in lieu of 7 Berryman Street.
4. That the rented shop on College Street be closed up.
5. That surplus furniture, either for repair or already repaired, be stored, pending installation in some school or office, in Crawford Street School, or in unused rooms in other schools.
6. That a fire-proofed room be provided for the storage of oils, gasoline, wastepaper and packing boxes, and that protection from fire at both stores and shop be increased.
7. That the management of the Stores and Distributing System be the sole duty of a Storekeeper, who shall be directly responsible to the Business Manager.
8. That an assistant storekeeper shall be in charge of the stocks and the operation of the stores, and shall be responsible to the Storekeeper.
9. That a Transport Foreman be in charge of the Board's fleet of motor trucks and motor cars and that he be directly responsible to the Storekeeper.*
10. That each warehouseman be assigned to a particular section of the stores and be held responsible to the assistant storekeeper for the condition and tally of the stocks in his section.
11. That a clerk be assigned to the duty of checking all receipts and issues of supplies.

* In case these duties would not require the full time of one man, extra duties might be assigned.

12. That truck drivers and assistants and motor-car drivers be directly responsible to the Transport Foreman for the proper operation and care of their cars.
13. That the work of the department be so scheduled that all members of the staff shall be kept uniformly busy from day to day.
14. That the routes of trucks be so scheduled that deliveries of supplies can be made at least weekly to each school and materials to be salvaged can be picked up and returned to the stores on the return half of the delivery.
15. That the use of the Board's trucks or cars for other than the business of the Board be absolutely prohibited without the written consent of the Business Manager and prepayment at current rates for such use.
16. That all members of the staff turn in time sheets daily and that cost accounts for operation of the stores and the distribution system be kept by the accountant of the Board.
17. That a perpetual inventory form of ledger be kept by the assistant storekeeper, as well as all other records necessary for the efficient operation of the stores.
18. That bin cards be kept on each bin, shelf, or stack, and that warehousemen enter all receipts and issues of stock, and bring down the balance on hand.
19. That the storekeeper check these balances from time to time with the actual balance in the bin, and with the balance shown on the ledger.
20. That a physical inventory be taken at least once a year under the direction of the chief accountant of the Board and that the bin cards, ledgers, etc., be adjusted to care for shorts or overs.
21. That whenever expedient vendors shall be required to deliver supplies purchased in fixed quantities at fixed times, and that these quantities and these times be adjusted to the rate of consumption of such supplies by the schools.
22. That a maximum and minimum quantity be fixed for each article to be stored.
23. That all requisitions to the purchasing agent for new stock be in writing, on standard requisition forms, serially numbered, and shall show, in addition to the actual quantity

and quality of goods required, the amount on hand, the amount on order but not received, and the average consumption of the article required.

24. That the receiving clerk tally and enter, on a standard form, all shipments of goods received at the stores and that the storekeeper shall enter on this form the results of his inspection.
 25. That the accountant require such a form, signed by the receiving clerk and storekeeper or inspector, before approving payment for supplies received at the stores.
 26. That requisitions from schools be filled as received and the goods held, if necessary, pending the scheduled day for delivery.
 27. That a clerk be permanently assigned to do packing, and such other work as may be required to utilize his full time.
 28. That the principal or other person receiving the goods from stores forward the accepted delivery slip to the accountant to be checked against the storekeeper's statement.
 29. That requisitions for the use of the Board's trucks or motor cars be sent to the transport foreman, who shall assign a route or duty to each driver or assistant daily, according to the urgency of the demand for service.
 30. That the transport foreman keep a permanent record of the work of the motor fleet, and to this end that drivers and assistants shall turn in their daily time sheets to him.
 31. That the mileage and expense of operation of each truck be kept.
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STORES

Plant.

The main stationery stores are kept at 27 Robert Street, adjoining Lansdowne School, with temporary "overflow" accommodation in a rented store on College Street.

Plumbing and steamfitting supplies are kept in part of the furniture repair shops on Berryman Street, adjoining the Jesse Ketchum School. This building also contains the garage for the Board's three motor trucks.

The old Crawford Street School is used temporarily as a store for furniture.

Both the Robert Street and Berryman Street buildings are modern and are equipped with elevators. The Berryman Street building contains about twice the floor area of the Robert Street store, and as the latter building is, at times, strained to its capacity to handle stationery stocks, it would seem advisable to transfer the furniture repair work to Robert Street and consolidate all the stores at Berryman Street.

Desks, etc., as repaired, could be stored at Crawford Street School, or in other unused building, until required.

Staff.

In charge of this branch is the Storekeeper, who, as already pointed out, is directly responsible to the Superintendent of Purchasing and Supplies. His staff consists of:

The assistant storekeeper Four warehousemen	}	At 27 Robert Street
One clerk One repair and garage man Three truck drivers Three drivers' assistants	}	At 7 Berryman Street

Duties.

The Storekeeper stated that his duties were:

- 1—To order, receive, store and distribute all supplies;
- 2—To check and inspect the quality of material received;
- 3—To supervise the cartage for all departments;
- 4—To assist the Superintendent of Purchasing and Supplies in purchasing generally and especially in ordering and delivering fuel.

It might be mentioned that the Storekeeper was rarely seen in the Stores Office, much of his time apparently being taken up in discharging his duty as assistant to the Superintendent.

The customary duties of a Storekeeper appear to be performed by the Assistant Storekeeper, who, with a staff of four warehousemen, is located at 27 Robert Street.

The duties of these four warehousemen are not clearly defined, nor are they on a functional basis. The daily duties of receiving and checking shipments, of making up and packing orders for the various schools and of baling wastepaper, are distributed indiscriminately among the four clerks, as is convenient. Under this arrangement it is difficult to fix responsibility for errors or shortages.

The three truck drivers and the three assistants occasionally act as warehousemen, when not employed in delivering (or returning) supplies to the schools. These are the only members of the entire staff of the Superintendent who turn in time sheets. An analysis of these time sheets would indicate that apparently a large proportion of the time is spent in the Stores.

The clerk at the Berryman Street Stores is only indirectly under the supervision of the Storekeeper or Assistant Storekeeper, but is directly under the control of the Superintendent. He is assisted by the repair or garage man who acts as warehouseman, when not employed on repairs to the Board's trucks.

Three days' work of the above staff appears to be set aside and scheduled for handling deliveries of stationery to schools, the balance of the week being filled in with any miscellaneous work that comes to hand. Consequently, in the first half of the week the clerks appear to have more work than they can handle accurately, and in the balance of the week have scarcely sufficient to do to keep them employed. This fact may also account for the large proportion of the time of the truckmen which is charged against stores.

Store Sites.

As the geographic centre of the city is approximately at the corner of Ketchum and Scollard Streets, and the centre of population near College and Spadina, it will be seen that the sites have been selected to place the stores in the centre of the school system. This is most desirable, but unfortunately the sites are small and hardly permit of future enlargement of the buildings. This is particularly true of the Robert Street Stores. The Berryman Street site might be enlarged by purchases to the east or west. Neither building has been planned to give ready access to trucks, etc.

Arrangement of Stock.

The main floor of the Robert Street Stores is reserved for miscellaneous stocks, the packing table and bins for pending deliveries, the wastepaper baler, storekeeper's office, etc. The lateral arrangement of the shelving tends to reduce the available storage space and gives a number of narrow passageways which a longitudinal arrangement would remedy. The stock is arranged in the same order as the items appear on the requisition forms, which is an excellent idea.

All heavy stock which cannot conveniently be placed on shelves or in bins, is piled on the floor, and this further encumbers the passageways.

On the top floor, only eighteen inches of working space between shelves was left, and this is too narrow to permit the operation of a hand truck.

Records of Stock.

Perpetual inventory (or bin) cards are used, but as these are not posted when the stock is either put in or taken out of the bins, but weekly from the stock ledgers in the Administration Building, they are of little value. If each warehouseman were assigned to a particular section of the stores and required to enter all receipts and deliveries of stock from his section, these cards would be of considerable value. They would show at a glance the amount of any stock on hand, would indicate to the Storekeeper when to order new stock, and would be a check against errors in posting stores ledgers, etc. The knowledge that the actual balance in the bins might be checked against the card balance at any time would tend to develop in the warehouseman greater responsibility for the stock under his care.

Deliveries of Goods.

It is claimed that the Robert Street Building is at times so crowded with stock that it is almost impossible to get at many supplies and consequently the time spent in and cost of making up deliveries to the schools is excessive.

This difficulty appears to result from a weakness in the terms on which goods are purchased, permitting dealers to deliver a season's supply of perhaps bulky goods in practically one lot. If dealers were required to deliver fixed quantities, at fixed periods, distribution to the schools could be so scheduled that only a working minimum supply need be kept in store in any month. A rearrangement of the shelving and a redistribution of stores, say, a transfer of caretakers' supplies from Robert Street to Berryman Street, would further increase the capacity of the Robert Street Stores. However, the suggestion made earlier that the Robert Street building be

used as a shop and the present shop and stores combined at Berryman Street be used wholly for stores, would appear to be a more satisfactory solution.

If this be done a fireproof section should be provided at both places for the storage of oils, gasoline and other highly inflammable substances. The practice of storing floor oils, linseed oil, etc., in proximity to empty wooden cases, excelsior, straw and paper, in the basement of the stationery stores is hazardous. Neither the Robert Street nor the Berryman Street building is of fireproof construction and neither is equipped with automatic fire extinguishing devices, although stand pipes and fire hose are provided in each.

Requisition for New Stock.

As new stocks are required to replace issues to schools, etc., the Storekeeper, or usually the Assistant Storekeeper, advises the Superintendent of Purchasing and Supplies, either by telephone or messenger, that certain materials are required. Standard printed requisitions are not customarily used, nor are the actual quantities needed always stated. As there are no accurate working records of consumption or of stocks on order but not delivered, the Superintendent can have only a general idea of the quantities required. He can, of course, refer to the stock ledger balances, but as these are posted weekly, purchases for stores must be made more or less blindly as to the actual requirements. It is not unlikely that goods in excess of the needs of the Department for some months to come are ordered.

The Bureau representative observed several instances of goods which had been in stock for nearly a year, occupying valuable storage space in the Robert Street building which has been condemned by the Superintendent for several years past as too small.

Receipt and Inspection.

As goods are received from the vendor, the receiving clerk, who, as pointed out, may be any one of the warehousemen available, makes a memorandum on a scrap of paper of the description and quantity of goods received, signs it and files it for the later attention of the Storekeeper or assistant.

This memo is compared with the vendor's delivery slip or invoice and with a copy of the purchasing order which, as stated, may contain little information. Particulars of the shipment are entered in a "receiving book" and a receiving slip made out and forwarded to the Superintendent's office. The receiving book is referred to when the vendor's monthly statement is forwarded to the Storekeeper for approval.

The inspection of the goods received appears to be lax and in some instances is not attempted. The Storekeeper cannot be held solely responsible for this laxity as, particularly on open market purchases, he has, from his copy of the purchase order, no accurate basis on which to judge the quality ordered. However, no more systematic inspections are made of goods bought on contract, the quality of which should be known to the Storekeeper through the specifications.

Deliveries.

Requisitions for supplies to be delivered to schools are sorted on Monday of each week, first into two divisions, eastern and western sections of the city, and then into various routes for delivery by the motor trucks.

Two clerks are usually employed filling requisitions, often moving from floor to floor, and another clerk temporarily acts as packer, and checks the count before bundling. The parcels are grouped as per the delivery schedule.

The selection of the various articles, the checking and packing is done expeditiously. An average order, timed with a stop watch, required:

7 min.	10 sec.	in selection.
1 "	5 "	" checking.
15 "	24 "	" packing.

The time spent on checking seems proportionately small. It was noticed that balances shown on "bin cards" frequently did not agree with the actual balance of stock in the bin.

With each delivery to a school is included a statement of the quantities of the various goods charged to the school, by which the principal or his assistant can check the quantity received. This is also used as a detailed receipt form and, signed by the principal or caretaker, is forwarded to the Superintendent's office, where it is filed, but apparently rarely referred to, the Storekeeper's statement of the quantities issued being accepted without check.

A second delivery slip, but showing the number of parcels only, is forwarded with the truck driver, and this he must have signed as evidence of delivery.

The various schools and offices are sorted into eight permanent routes, half of which are covered in the first three days of one week and the other half in the first three days of the next week. There is, therefore, a delivery to each school every other week.

As explained previously, the remaining three days of the week are spent on miscellaneous work, in overhauling trucks, working at the stores, etc. This is an inefficient system, and

in addition to wasting part of the time of the trucks and drivers, is apparently responsible for an expenditure by this department alone of \$342.50 at least for additional express hire last year.

The trucks cover their scheduled routes in record time. An average of six minutes is spent at each school delivering parcels and picking up any odd articles for repair or exchange, etc. When this material is not ready, the driver wastes considerable time hunting up the caretaker. On one trip observed on April 26th,

21 minutes, 6 seconds, was required to load 134 packages for 20 schools.

11 minutes, 21 seconds, was spent at the surplus store on College Street, loading two ladders and three tables.

2 hours, 2 minutes, 33 seconds, was spent on the road, delivering parcels and receiving supplies for return, for 20 schools.

The following analysis of the time of two trucks in 1919 shows that, of the total time,

About 48% is spent on building supplies.

" 24% " " " classroom supplies.

" 14% " " " sundries.

" 7% " " " work on truck, or idle.

" 7% " " " at the storeroom, or idle.

100%

The time spent on building supplies, includes cartage of desks to and from the repair shop. The item "sundries" includes some time moving folding chairs from school to school for entertainments, meetings, etc.

Analysis of Drivers' Time Sheets for 1919

	Classroom Supplies	Building Supplies	Sundries	Work on Truck	Work in Stores	TOTAL
Truck No. 1*	599½	654½	260½	70½	90	1675 hours
Truck No. 2	341½	1200½	304	212½	173½	2232 "
	941	1855	564½	283	263½	3907 hours

* For nine months only—records for March, November and December missing.

These time-sheets have not apparently been checked or examined.

Costs of stores operation or distribution are not kept.

V.—Accounting Work of the Toronto Board of Education

Summary of Recommendations

1. That the "Department of Chief Accountant, New Buildings," be amalgamated with that of the "Chief Accountant, Maintenance," in a unified "Department or Division of Chief Accountant."
2. That such Stores Accounts as are now kept by the Department of Purchasing and Supplies be transferred to the Department of the Chief Accountant.
3. That at the time of transfer, the Chief Accountant be given the option of employing new clerks or taking over members of the staff now employed on accounting in the Department of Purchasing and Supplies.
4. That, at the same time, the Chief Accountant install an improved system of Stores Accounts and that he be authorized to obtain professional advice to assist him in making the new accounts as practical as possible.
5. That further studies be undertaken with a view to obtaining more informing costs.
6. That more use be made of the cost statements than at present.
7. That the classification of accounts be revised according to administrative units, objects of expenditure and functions, under the supervision of the chief educational and business administrators of the Board, so as to keep the accounts abreast of the best practice from the standpoint of usefulness for administrative purposes.
8. That up-to-date monthly summary financial and cost reports be presented to the Board as well as to the educational and business administrators of the Board, as a matter of routine, and that they be printed in the minutes.

Accounting Work of the Toronto Board of Education

Great improvements have been made in the financial reports of the Board of Education during recent years. These reflect improvements in the accounting system. The Bureau has not gone into the details of the system, as these will no doubt be considerably modified from time to time by the accounting staff, under the supervision of the Business Administrator and on the advice of the City Auditor who reports periodically on the accounts of the Board.

The Bureau retained the services of Mr. Frank G. Short, C.A., to write a report on the general features of the accounting system.

The outstanding features which need correction are:

- 1—The existing separation into two divisions of what should be a unified accounting system;
- 2—The insufficiency of the accounting control of prices and of stores; and
- 3—The performance of accounting functions by the Purchasing and Supplies Department.

The following paragraphs are quoted from his report:

"History of Installation.

The accounting system at present in use was installed by Mr. H. C. Morley, who acted under the direction of the City Auditor. It dates from 1st January, 1917. Mr. Morley discontinued his relations with the Board in June, 1918, after the Board had failed to take action on a report recommending certain changes in organization. Since that time Mr. N. H. Bilbrough has been chiefly responsible for further improvements in the accounting methods."

"System Incomplete.

Those portions of the accounting system which have been designed by either Mr. Morley or Mr. Bilbrough are, on the whole, well designed to meet the requirements of the Board. Nevertheless, I doubt if any of the persons responsible for the installation of the accounting system would claim that it had ever been completed. There are still some very important sections of the accounts (some of which are covered in this report) which have not as yet had the attention they deserve."

"Organization.

Most of the accounting work of the Board is carried on by an officer holding the title "Chief Accountant, Maintenance." He has a staff of sixteen assistants.

Another officer, with the title "Chief Accountant, New Buildings," has charge of the accounts dealing with the expenditures on new buildings in so far as such expenditures are made out of debenture funds. He has a staff of three assistants.

Some of the members of the staff of the Superintendent of Purchasing and Supplies are also carrying on certain accounting duties, chiefly in connection with stores accounting, checking purchase invoices, etc."

"The Department of Purchasing and Supplies.

As you are drafting a report on the Department of Purchasing and Supplies, it is not necessary for me to cover the work of that Department in detail. Nevertheless, I have briefly reviewed the work of the Department and will summarize my conclusions with regard thereto:

1. The Department is at present keeping stores accounts and partly checking invoices for supplies purchased.
2. This work is under ordinary conditions and in most businesses carried on in the Accounting Department, and I can see no good reason why that should not be done in this case. In fact, it should be obvious that the Accountant is better able to supervise work of this nature than the Superintendent of Purchasing and Supplies.
3. Under these conditions, I would recommend the transfer of this work to the Department of the Chief Accountant, Maintenance*, which, in fact, is the Accounting Department (or the nearest approach to one which the Board has). Needless to say, when this transfer is effected the records should at all times be open to the Superintendent of Purchasing and Supplies.
4. I would further recommend that, at the time of the transfer, the Chief Accountant, Maintenance*, be given the opportunity of employing new clerks or of taking members of the present staff as he sees fit.
5. As I do not consider the present methods of keeping stores records to be well designed to meet the requirements of the Board's business, I would further recommend that at the time of the transfer the Chief Accountant, Maintenance,* design and install an improved sys-

* This work would and should go to the Chief Accountant on the merging of the two accounting departments at present existing.

tem. He should, in my opinion, be authorized to obtain such professional advice as will insure the stores records being as practical as possible."

"The Department of the Chief Accountant, New Buildings.

Until the time Mr. James W. Burns was made Assistant Secretary, there was only one "Chief Accountant." Just why the then unified accounting department should be divided and two "Chief Accountants" created is a question upon which I have been unable to get any satisfactory information. However, the fact remains that the great bulk of the accounting work, including the General Ledger which contains all controlling accounts, has been left with the "Chief Accountant, Maintenance," but a small section has been transferred to the "Chief Accountant, New Buildings." This small section of the work, while important, is relatively simple and of such a nature that it could be carried on readily and advantageously by a clerk or clerks under the supervision of the "Chief Accountant, Maintenance."

I would, therefore, recommend this transfer which, if carried out, together with the transfer of accounting duties from the Superintendent of Purchasing and Supplies, would result in a unified Accounting Department."

"Appropriation Ledgers.

Appropriation Ledgers are at the present time being installed by the Chief Accountant, Maintenance. In my opinion these will be of little value unless the present method of purchasing supplies is altered. Large numbers of purchase orders are issued at present[†] in which no price is specified for the article purchased, thus leaving it to the vendor to charge what is presumably the current market price. It would be quite impossible to treat such orders as encumbrances against appropriations, as the amount of the encumbrance would be unknown until such time as the invoice was received. Other purchase orders are issued with prices specified that have not been agreed to by the vendor. In such case the amount which would be shown as an encumbrance would be incorrect, as the vendor would simply charge more than the price specified where such price was less than he was prepared to sell at."

"Cost Accounts.

Cost accounts in some considerable detail are already kept. It has been suggested to me that the present cost classification is not the best which might be designed. I am of the opinion, however, that it is considerably in ad-

[†] This condition has been greatly improved since this was written.

vance of the general practice in Boards of Education or municipalities, and that before further alterations of the classification are undertaken the following suggestions should be considered :

1. That further studies be undertaken with a view to obtaining more accurate costs on the present classification. The costs as kept at present appear to be accurate in so far as they result from analysis made under the supervision of the Chief Accountant, Maintenance; but the necessity of handling the analysis of supply costs (if my recommendation regarding the transfer of this work from the Superintendent of Purchasing and Supplies is adopted) will create a further problem. The necessity of adopting some scientific method of determining the depreciation of capital assets must also be met if accurate costs are to be determined.
2. The present cost statements should be used more than they are at present. There is little real reason for keeping elaborate cost accounts unless the costs obtained are used in the management of the Board's business. In other words, if the costs are closely studied by the management and as a result of such study the management is able to eliminate waste that would not otherwise have been eliminated, then the expenditure in bookkeeper's salaries, etc., necessary for the keeping of cost accounts, is well repaid: always provided, however, that the money cost of the waste eliminated is greater than the cost of operating the cost system.
3. That further efforts should be made to get cost statements out more promptly."

"Conclusion.

I have endeavored in the above report to cover the points of importance in connection with the accounting methods of the Board. I have not made an audit and have, therefore, avoided any reference to questions concerning the accuracy or validity of the accounts. I have also avoided numerous minor points which are somewhat technical and of no public interest. I would suggest, however, a further development of the accounting methods as there are a number of places where minor improvements might be made which would save labor or which would result in more satisfactory information. On the whole, however, the Board has the basis of a very satisfactory accounting system."

Accounting as an Aid in Educational Administration.

Until recent years the accounts of the Board have not been designed to produce information necessary for the successful administration of the schools. Their chief purpose was to insure honesty of administration of public funds. Recently the cost accounting division has made a noteworthy effort to provide such information for the use of the Board. If the ordinary accounting system had been all that it should be, these cost statements would have been much more valuable. As it is, they are in good form and are extremely enlightening.

The accounts of a carpet factory differ from those of a poultry farm because the facts which need to be known about the carpet factory, for the purpose of efficient and economical operation, are not the same as the facts needed in the operation of the poultry farm. For a similar reason, school accounts are differentiated from other public accounts. The school accounts are principally for the use of those responsible for the administration of the schools as educational enterprises. The facts as to processes of education are the most important facts which school accounts should show. The official authority to decide what sort of educational facts need to be shown by the accounts should be the chief educational adviser of the Board, with his associates. It is not the function of the accounting department to tell him what they think he should know, but it is the right and duty of the Chief Inspector to secure, through the Business Administrator, such organization of the accounts as will tell him automatically what he requires to know.

The Bureau suggests:

That the classification of accounts be revised according to administrative units, objects of expenditure and functions, under the supervision of the chief educational and business administrators of the Board, so as to keep the accounts abreast of the best practice from the standpoint of usefulness for administrative purposes.

That up-to-date monthly summary financial and cost reports be presented to the Board as well as to the educational and business administrators of the Board, as a matter of routine, and that they be printed in the minutes.